

tufts and few scattered compound hairs, margins shallowly and irregularly lobed, rarely cut more than one-third way to midrib, the lobes with 1 or 2 fine bristles $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Staminate and pistillate flowers borne on new spring branchlets. Acorns maturing the second year, solitary or in clusters of 2 to 4; the cup $\frac{1}{4}$ to $\frac{3}{8}$ inch high, $\frac{5}{8}$ to $\frac{3}{4}$ inch broad, scales thin, well imbricated; the nut ovoid, about one-third enclosed by cup, $\frac{5}{8}$ to $\frac{7}{8}$ inch long, finely pubescent without, densely pubescent within.

Type. Castro Valley Ranch about six miles southwest of Gilroy, Santa Clara County, California, October 2, 1948, *McMinn*, *Babcock*, and *Righter 5561* (Herbarium of the University of California No. 766681). A topotype, showing young acorns, was collected May 8, 1948 (*McMinn*, *Babcock*, and *Righter 5560*).

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MYXOMYCETES OF MOUNT SHASTA

WILLIAM BRIDGE COOKE

Myxomycetes have been collected on Mount Shasta, Siskiyou County, California, during seven summers between 1937 and 1947. No earlier records of these plants from this mountain are known to the writer. Intensive collecting was carried on during the early parts of the summer seasons as the plant materials upon which myxomycetes fruit were becoming exposed by the melting snow pack and during the times when dead and rotten logs of Shasta fir, *Abies magnifica* var. *shastensis*, were still wet. Less intensive collecting was carried on during the remaining months of the summer when most substrata upon which these organisms fruit were very dry. Most of the collections were made in the Shasta fir and white bark pine zones in the vicinity of the Sierra Club's Shasta Alpine Lodge located at Horse Camp which is situated in the ecotone between these two zones.

All the specimens collected were determined by G. W. Martin, of the State University of Iowa, who found among them two previously unknown species. Arrangement of genera in the following table is that found in "The Myxomycetes" by T. H. Macbride and G. W. Martin (MacMillan Company, New York, 1934).

Two species of lichens, a species of *Coniocybe* and material referred by Dr. Martin to *Mycocalicium albonigrum* (Nyl.) Fink

Species	Altitude	Zone	Collection Numbers	Date	Suscept Substratum
<i>Erioporeae</i>					
1. <i>Ceratiomyxa fruticulosa</i> (Muell.) Macbr.	8000	Ams	8561	7 July 1937	Shasta fir
	8000	Ams	15673	7 Aug. 1941	Shasta fir
	8000	Ams	18130	29 June 1946	Shasta fir
<i>Myxogasteres</i>					
<i>Physarales</i>					
<i>PHYSARACEAE</i>					
2. <i>Fuligo intermedia</i> Macbr.	8000	Ams	10226	21 July 1938	Shasta fir
	8000	Ams	p20127	25 June 1947	Shasta fir
3. <i>Fuligo septica</i> (L.) Weber	5000	M.C.	8616	6 Aug. 1937	Epilobium sp. litter
4. <i>Badhamia decipiens</i> (Curt.) Berk.	9000	Pa	15707	14 Aug. 1941	Pinus albicaulis
5. <i>Physarum albescent</i> Ell.	8100	Pa	10164	30 June 1938	Chrysothamnus Bloom- eri var. angustatus
6. <i>Physarum alpinum</i> G. Lister	8000	Ams	10145	20 June 1938	Shasta fir
	8000	Ams	10220	18 July 1938	Shasta fir
7. <i>Physarum auripigmentum</i> Martin	8100	Ams	20099	23 June 1947	Shasta fir
			(Type)		
8. <i>Physarum bitectum</i> Lister	5700	M.C.	16664	3 July 1942	Veratrum californicum
9. <i>Physarum rubronodum</i> Martin	8000	Ams	18126	29 June 1946	Rotten cotton cloth
10. <i>Physarum</i> sp.	8000	Ams	15671-A	7 Aug. 1941	Shasta fir
<i>DIDYMIACEAE</i>					
11. <i>Didymium dubium</i> Rost.	8000	Ams	?8545-A	29 June 1937	Lupinus obtusilobus
	5000	M.C.	8572	9 July 1937	Amelanchier pallida
	8000	Ams	10165	30 June 1938	Chrysothamnus Bloom- eri
12. <i>Didymium</i> sp.	10000	A	8686	15 Sept. 1937	Hulsea nana litter
13. <i>Diderma ?deplanatum</i> Fr.	8000	Ams	20102	23 June 1947	Shasta fir
14. <i>Diderma Lyallii</i> (Masse) Macbr.	5700	M.C.	16670	3 July 1942	Veratrum californicum

Species	Altitude	Zone	Collection Numbers	Date	Suscept Substratum
15. <i>Diderma niveum</i> (Rost.) Macbr.	8000	Ams	10143	20 June 1938	Shasta fir
	8000	Ams	10147	20 June 1938	Shasta fir
	8000	Ams	10186	6 July 1938	Shasta fir
	8000	Ams	18061	28 June 1946	Shasta fir
	7800	Ams	18207	10 July 1946	Pinus albicaulis (live twig)
16. <i>Diderma ?spumarioides</i> Fr.	8100	Ams	20129	25 June 1947	Shasta fir
17. <i>Lepidoderma carestianum</i> Rost.	8000	Ams	18131	30 June 1946	Shasta fir
	8000	Ams	10107	15 June 1938	Penstemon gracilentus
	8000	Ams	10150-A	23 June 1938	Chrysothamnus Bloom-eri
	8000	Ams	10151-A	23 June 1938	Chrysothamnus Bloom-eri
	8000	Ams	18170	7 July 1946	Chrysothamnus Bloom-eri
18. <i>Lepidoderma granuliferum</i> (Phill.) R.E.Fr.	8000	Ams	10150	23 June 1938	Penstemon gracilentus
	8000	Ams	10151	23 June 1938	Chrysothamnus Bloom-eri
	8000	Ams	10152	23 June 1938	Gayophytum sp. litter
	8000	Ams	10170	30 June 1938	Penstemon gracilentus
	8000	Ams	10198-A	13 July 1938	Eriogonum marifolium
	8000	Ams	10202	13 July 1938	Misc. litter
	8000	Ams	10204-A	13 July 1938	Lupinus obtusilobus
	8000	Ams	18089	27 June 1946	Lupinus obtusilobus
	8000	Ams	20285-A	10 July 1947	Anemone occidentalis
Stemonitales					
STEMONITACEAE					
19. <i>Stemonitis arifera</i> (Bull.) Macbr.	5000	M.C.	18101	28 June 1946	Pinus ponderosa
	6000	Ac	20244	10 July 1947	Abies concolor
20. <i>Comatricha nigra</i> (Pers.) Schroet.	8000	A.T.	10289	8 Sept. 1938	Tsuga Mertensiana
	8000	Ams	18194	10 July 1946	Pinus ponderosa boards

Species	Altitude	Zone	Collection Numbers	Date	Suscept Substratum
21. <i>Comatricha pacifica</i> Macbr.	8000	Ams	13317	5 July 1939	Shasta fir
	8000	Ams	18015	22 June 1946	Shasta fir
	7800	Ams	18205	10 July 1946	Shasta fir
22. <i>Comatricha Suksdorfii</i> Ell. & Ev.	8000	Ams	8621	7 Aug. 1937	Shasta fir
	8000	Ams	10138	20 June 1938	Shasta fir
	8000	Ams	10139-A	20 June 1938	Shasta fir
	8000	Ams	10140	20 June 1938	Shasta fir
	8000	Ams	10247	28 July 1938	Pinus albicaulis
	8000	Ams	15641	29 July 1941	Shasta fir
	8000	Ams	18074	26 June 1946	Shasta fir
	8000	Ams	20059	22 June 1947	Shasta fir
	8000	Ams	20101	23 June 1947	Shasta fir
	7800	Ams	18142	2 July 1947	Shasta fir
23. <i>Comatricha</i> sp. LAMPRODERMACEAE					
24. <i>Enertheuma melanospermum</i> Macbr. & Martin	8000	Ams	10144-A	30 June 1938	Shasta fir
	8000	Ams	10180	3 July 1938	Shasta fir
	8000	Ams	15566	16 July 1941	Shasta fir
	8000	Ams	18039	24 June 1946	Shasta fir
	8000	Ams	18193	10 July 1941	Pinus ponderosa board
25. <i>Lamproderma arcyrioides</i> (Somm.) Rost.	9000	Pa	10251	28 July 1938	Pinus albicaulis
26. <i>Lamproderma carestiae</i> (Ces. & DeNot.) Meylan	8100	Ams	10206	13 July 1938	Shasta fir
27. <i>Lamproderma columbinum</i> (Pers.) Rost.	8000	Ams	18128	29 June 1946	Shasta fir
28. <i>Lamproderma Sauteri</i> Rost.	8000	Ams	8518-B	22 June 1937	Shasta fir (exposed from snow bank 1 day)
	8000	Ams	10106	15 June 1938	Penstemon gracilentus
	8000	Ams	10108	15 June 1938	Sitanion hystrix culms
	5000	C	10121	17 June 1938	Rubus parviflorus
	8000	Ams	10144	20 June 1938	Shasta fir

Species	Altitude	Zone	Collection Numbers	Date	Suscept Substratum
28. <i>Lamproderma Sauteri</i> Rost.	8000	Ams	10154	24 June 1938	Chrysothamnus Bloomeri
	8000	Ams	10167	30 June 1938	Chrysothamnus Bloomeri
	8000	Ams	10181	3 July 1938	Penstemon gracilentus
	8000	Ams	14631	8 July 1940	Shasta fir
	8000	Ams	15594	23 July 1941	Shasta fir
	8500	Pa	15708	14 Aug. 1941	Shasta fir
	7800	Ams	18087	27 June 1946	Pinus albicaulis litter
	8000	Ams	18171	7 July 1946	Chrysothamnus Bloomeri
29. <i>Lamproderma</i> sp. Liceales	8000	Ams	10180	3 July 1938	Shasta fir
CRIBRARIACEAE					
30. <i>Cribraria argillacea</i> Pers.	8000	Ams	10264	10 Aug. 1938	Shasta fir
	8000	Ams	18068	26 June 1946	Shasta fir
	8000	Ams	18129	30 June 1946	Shasta fir
31. <i>Cribraria rufa</i> (Roth) Rost.	6000	Ac	10246	28 July 1938	Abies concolor
	8500	Pa	14652	12 July 1940	Shasta fir
	8000	Ams	20100	23 June 1947	Shasta fir
	8000	Ams	20374	29 July 1947	Shasta fir
32. <i>Dictydium cancellatum</i> (Batsch) Macbr.	8000	Ams	20208	1 July 1947	Shasta fir
	8000	Ams	20209	1 July 1947	Shasta fir
33. <i>Dictydium</i> sp. LICEACEAE	6500	Ams	8606	30 July 1937	Shasta fir
34. <i>Licea minima</i> Fr.	8000	Ams	Summer 1938	Shasta fir (cultured at Iowa City from plasmodial collection)
RETICULARIACEAE					
35. <i>Enteridium olivaceum</i> Ehr.	8000	Ams	10142	20 June 1938	Shasta fir
	8000	Ams	10263	10 Aug. 1938	Shasta fir

Species	Altitude	Zone	Collection Number	Date	Suscept Substratum
35. <i>Enteridium olivaceum</i> Ehr.	9000	A	13353	26 July 1939	<i>Pinus albicaulis</i> (used as trail sign post)
LYCOGALACEAE	7800	Ams	14615	3 July 1940	Shasta fir
	8000	Ams	18038	24 June 1946	Shasta fir
36. <i>Lycogala epidendrum</i> (L.) Fr.	8000	Ams	8545-B	29 June 1937	<i>Lupinus obtusilobus</i>
37. <i>Lycogala</i> sp. (immature)	7800	Ams	14616	30 July 1940	Shasta fir
	5000	M.C.	15696	8 Aug. 1941	Conifer wood
Trichiales	8000	Ams	20210	1 July 1947	Shasta fir
ARCYRIACEAE	6500	Ac	20436	15 Aug. 1947	<i>Abies concolor</i>
	8000	Ams	18324	21 July 1946	Shasta fir
38. <i>Arcyria denudata</i> (L.) Wettst.	8000	Ams	10120	17 June 1938	Shasta fir
39. <i>Arcyria incarnata</i> Pers.	8000	Ams	10166	30 June 1938	Shasta fir
	6500	Ac	10192	7 July 1938	Shasta fir
40. <i>Arcyria versicolor</i> Phill.	8500	Pa	10245	28 July 1938	Shasta fir
	8000	Ams	18062	25 June 1946	Shasta fir
TRICHIACEAE	8000	Ams	20123	25 June 1946	Shasta fir
	8000	Ams	20197	29 June 1947	Shasta fir
41. <i>Prototrichia metallica</i> (Berk.) Massee	8000	Ams	8518	22 June 1937	Shasta fir
	8000	Ams	10139	20 June 1938	Shasta fir
	8000	Ams	10189	7 July 1938	Shasta fir
	8000	Ams	15671	7 Aug. 1941	Shasta fir
	7800	Ams	18204	10 July 1946	Shasta fir
	8000	Ams	20124	25 June 1947	Shasta fir

Species	Altitude	Zone	Collection Numbers	Date	Suscept Substratum
42. <i>Trichia alpina</i> (R.E.Fr.) Meylan.	8000	Ams	10227-A	21 July 1938	Anemone occidentale
	5700	M.C.	16667	3 July 1942	Veratrum californicum
	5700	M.C.	16669	3 July 1942	Veratrum californicum
43. <i>Trichia ?botrytis</i> (Gmel.) Pers.	8100	Ams	20212	1 July 1947	Shasta fir
	6000	Ac	20243	10 July 1947	Abies concolor
44. <i>Trichia fraginea</i> (Batsch) Pers.	8000	Ams	10146	10 June 1938	Shasta fir
	8000	Ams	13275	29 July 1939	Shasta fir
	8000	Ams	20128	25 June 1947	Shasta fir
45. <i>Trichia varia</i> Pers.	8000	Ams	15672	7 Aug. 1941	Shasta fir
	8000	Ams	20118	25 June 1947	Shasta fir
46. <i>Trichia</i> sp.	7800	Ams	18202	10 July 1946	Shasta fir
47. <i>Hemitrichia montana</i> (Morg.) Macbr.	8000	Ams	10141	20 June 1938	Shasta fir
	8000	Ams	18243	14 July 1946	Arctostaphylos nevadensis

had such a striking macroscopic resemblance to myxomycete fruiting bodies that they were collected as Myxomycetes. The former is found on rotting wood and sticks, the latter covered extensive areas on hand hewn boards of Shasta fir.

In the following table, forty-seven entities are listed. Of these, thirty-seven occur in the Shasta fir zone and thirty-one have been found on Shasta fir. In this group of organisms, species are not known to be restricted to host or to substrate. They do not necessarily fruit on the substrate from which they received their nourishment.

Zones in which these species were found have been discussed earlier (Cooke, W. B., The problem of life zones on Mount Shasta, Madroño 6: 49-56. 1941). In the above table these zones are indicated by the following symbols:

<i>Pinus-Libocedrus-Pseudotsuga-Abies</i> zone	
Chaparral association (seral)	C
<i>Pinus-Libocedrus-Pseudotsuga-Abies</i> association	M.C.
<i>Abies concolor</i> zone	Ac
<i>Abies-Tsuga</i> zone	
<i>Abies magnifica</i> var. <i>shastensis-Tsuga mertensiana</i> association	A.T.
<i>Abies magnifica</i> var. <i>shastensis</i> association	Ams
<i>Pinus albicaulis</i> zone	Pa
Alpine zone	A

A complete series of these species is in the herbarium of the State University of Iowa at Iowa City. Partial sets are filed at the University of California, Berkeley; the New York Botanical Garden; the University of Cincinnati; the Farlow Herbarium, Harvard University; Mycological Collections, Bureau of Plant Industry, Soils and Agricultural Engineering, Beltsville, Maryland; and in the writer's herbarium.

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A NEW POLYGONUM FROM OREGON

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Polygonum cascadenense sp. nov. Annuum; caulis 0.4-1.5 dm. altus, internodi breves; folia 5-15 mm. longa, oblanceolata, oblonga, obovata vel lineari-oblonga, sessilia; inflorescentia densissima, 4-5 floribus axillaribus; perianthia alba vel rosaceotincta; costa distincta; pedicellis erectis; stamina 8, antheris purpureis, filamentis basi dilatis; achaenia 3 angulata, 2 mm. longa, ovoidea vel ovoidea-oblonga, laevia, nigrescentia, inclusa vel paulo exserta.

Glabrous or slightly scurfy, wiry, light green annual; stem 0.4-1.5 dm. tall, angled, ridged or roughened between the angles, simple and erect or divergently branching at and above the base,